

Message Text

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TAGS: MARR/US

SUBJECT: OMEGA NAVIGATION SYSTEM - MODIFICATION FOR
SEARCH AND RESCUE

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CINCLANT FOR POLAD

1. DURING THE PAST YEAR THE US NAVY HAS CONDUCTED RESEARCH AIMED AT PROVIDING INSTANTANEOUS DISTRESS ALARMS, IDENTIFICATION, AND POSITION INFORMATION OVER THE ENTIRE WORLD. THIS PROJECT, CALLED THE GLOBAL RESCUE ALARM NET (GRAN), USES THE OMEGA NAVIGATION SYSTEM COUPLED WITH GEOSYNCHRONOUS SATELLITE RELAY TO PROVIDE INFORMATION WORLDWIDE.

2. IN THE GRAN CONCEPT, OMEGA SIGNALS ARE RECEIVED AND RETRANSMITTED TO A SATELLITE BY A SURVIVOR'S EMERGENCY RADIO UNIT. THE SATELLITE IN TURN SENDS THIS RETRANSMISSION TO A MONITORING EARTH TERMINAL. ALL THREE STAGES OF THIS PROCESS OCCUR INSTANTANEOUSLY.

3. IN THE PAST, THE LACK OF ACCURATE INFORMATION ABOUT THE PRECISE LOCATION OF SURVIVORS HAS WASTED LIVES AND MONEY IN CARRYING OUT SEARCH AND RESCUE WORK. SEARCHES ARE BOTH DELAYED AND PROLONGED IN THE ABSENCE OF ACCURATE INFORMATION ABOUT THE EXISTENCE AND LOCATION OF AN EMERGENCY.

SURVIVORS OFTEN DIE IN THIS INTERVAL OR ARE NEVER FOUND. IN A TYPICAL YEAR, OVER 100 CIVILIAN AIRCRAFT ARE LOST IN THE UNITED STATES, OF WHICH 20 ARE NEVER FOUND AND, WORLDWIDE, 200 MERCHANT SHIPS OF OVER 100 GROSS TONS ARE COMPLETELY LOST.

4. THE EMERGENCY DEVICES NOW USED ARE SHORT-LIVED AND CAN TRANSMIT ONLY FOR SHORT DISTANCES ON STRAIGHT LINES. THEIR TRANSMISSIONS MUST BE RECEIVED WITHIN 50 NAUTICAL MILES BY AN AIRBORNE DIRECTION FINDER WHICH CAN FOLLOW THE TRANSMISSION TO ITS SOURCE. THESE DIRECTION FINDERS ARE USEFUL ONLY IN LIMITED AREAS AND FOR SHORT PERIODS. THE GRAN METHOD ELIMINATES THESE LIMITATIONS BY PROVIDING A WORLDWIDE, CONTINUOUS, AND INSTANTANEOUS SYSTEM.

5. TO ACCOMMODATE THE GRAN SYSTEM, ANOTHER FREQUENCY MUST BE ADDED TO OMEGA'S PRESENT THREE RADIO FREQUENCIES OF 10.2, 11-1/3, AND 13.6 KILOHERTZ. GRAN EXPERIMENTS HAVE DEMONSTRATED THE NEED FOR A FOURTH FREQUENCY AT 10.1088 KILOHERTZ, COMBINED WITH A TIME-OF-SIGNAL ARRIVAL

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ANALYSIS TO RESOLVE POSITION AMBIGUITY ON A WORLDWIDE BASIS. (THE PRESENT OMEGA SYSTEM CAUSES POSITION AMBIGUITY TO OCCUR AT 72-MILE INTERVALS. COUNTRY-TO-COUNTRY AGREEMENTS ON OMEGA, WHILE NOT EXPLICITLY DEFINING THE SYSTEM, WERE BASED ON PRESENTATIONS WHICH INCLUDED ONLY THE THREE NAVIGATIONAL FREQUENCIES NOTED ABOVE. THE FOURTH FREQUENCY TO SUPPORT THE GRAN CONCEPT (10.88 KILOHERTZ) IS A NEW FACTOR BRIEFLY DISCUSSED IN THE

TECHNICAL LEVEL DISCUSSIONS HELD IN WASHINGTON JUNE 19-21, 1973.

6. PLEASE DISCUSS THE PROPOSED ADDITION OF THE FOURTH OMEGA FREQUENCY WITH APPROPRIATE OFFICIALS OF YOUR HOST GOVERNMENT. WE PARTICULARLY SEEK THEIR ACTIVE SUPPORT FOR THE GRAN PROGRAM AS AN EXTENSION OF CIVILIAN USE OF OMEGA. THE COST OF ADOPTING THE FOURTH FREQUENCY WILL BE BORNE BY U.S., SINCE IT ONLY INVOLVES CHANGES TO US FURNISHED ELECTRONIC EQUIPMENT. WE WILL BE HAPPY TO FURNISH ANY FURTHER INFORMATION HOST GOVERNMENTS MAY DESIRE
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